



# Y-12 BULLETIN

A NEWSPAPER BY AND FOR EMPLOYEES OF CARBIDE AND CARBON CHEMICALS CORPORATION IN Y-12

Volume 3, No. 30

OAK RIDGE, TENNESSEE

Tuesday, August 9, 1949

## X-Ray Spectrographs Constructed In Y-12 Shops Enhance Research

As part of its Research Program the Spectroscopy Section of the Isotope Research and Development Division covers the electromagnetic spectrum from the long wavelengths of the radio frequency region to the very short wavelengths of the X-ray region. In addition to the (well known) optical spectroscopy much experimental work is done by this group in Y-12 which will lead to a better understanding of atomic structure.

Perhaps the most unique instruments used are the X-ray spectrographs, two spectrographs to cover a large region of the X-ray spectrum, have been designed by members of the group and were built in the Y-12 shops. X-ray tubes, high voltage power supplies and other accessories have also been constructed for use in this work.

X-rays were discovered by Roentgen in 1895 and their use for medical diagnosis and in treatment of cancer are well known.

Except for their ability to penetrate matter, very little was known about the nature of X-rays until Von Laue and Bragg found that they could be diffracted by crystals. Using these methods Mosley, in 1915, discovered that each of the elements could be made to give off X-rays which made positive identification possible.

In the period from 1915 to 1930 many workers were active in the field of X-ray spectroscopy gathering information on the structure of atoms and measuring wavelengths of X-ray lines of as many elements as were then available.

A spectrograph of the usual type is used in the region of visible light. When light is passed through a spectrograph it is split into the individual colors of which it is composed just as light from the sun is broken up to form a rainbow when it passes through raindrops in the proper direction.

Although X-rays cannot be seen an X-ray spectrograph can be used to split the X-rays into their individual "colors" and record the results with photographic film or a geiger counter. As was discovered by Mosley, each element will give off -rays of definite wavelengths, (or "color") and the element may then be identified by the position

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### SAFETY SCOREBOARD

Your Plant Has  
Operated  
43 DAYS  
Without A Lost Time  
Accident  
THROUGH AUG. 4

## M.I.T. Students Record Oak Ridge Activities

Editor's Note: The following excerpts are taken from a brochure prepared by R. F. Baddour, Assistant Director, Massachusetts Institute of Technology, Engineering Practice School.

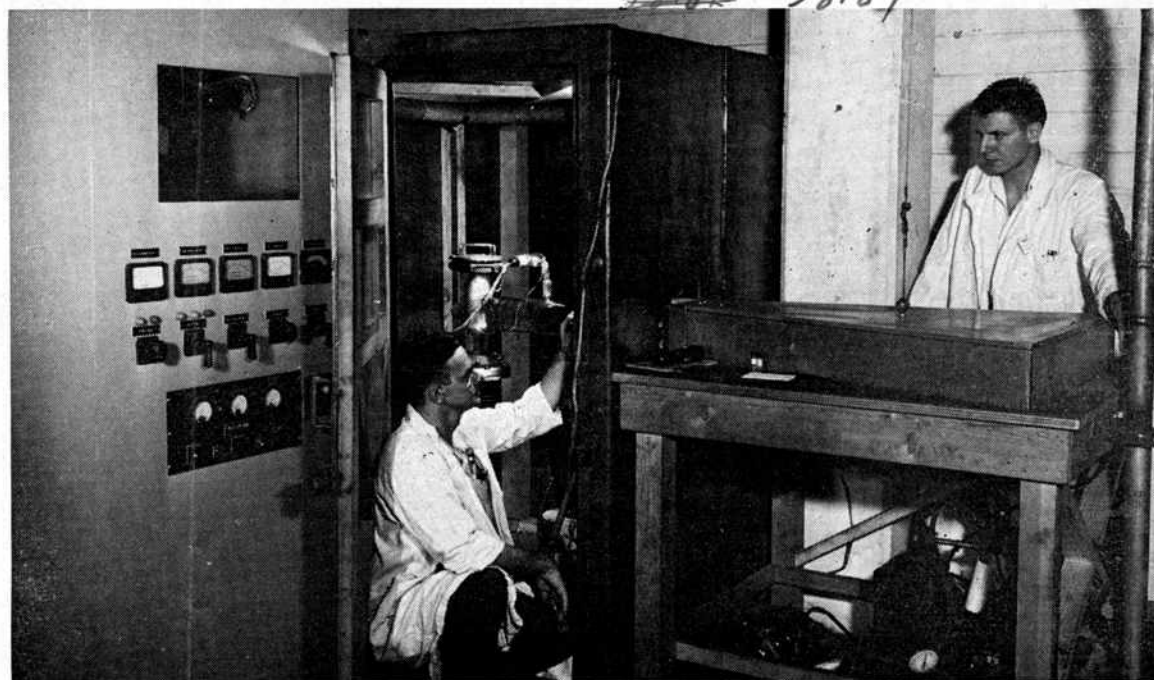
The purpose of the Practice School at Oak Ridge is the education of graduate students from the Massachusetts Institute of Technology in several fields of engineering under a program which is designed to develop their ability to apply basic principles to the solution of technological problems encountered in industry. Since human relations are often decisive for the success of an engineering enterprise, the course stresses cooperative action among the students and with the plant organization. The Practice School program provides education in atomic energy and its related fields with emphasis on the engineering aspects of atomic energy production.

### Organization

To accomplish this purpose, a subcontract was entered into by M.I.T. and the Carbide and Carbon Chemicals Corporation whereby the school functions in the three atomic energy installations operated by Carbide in Oak Ridge under a prime contract with the Atomic Energy Commission. The main quarters for the school, provided by Carbide, are located at the Gaseous Diffusion Plant and consist of offices, a machine shop, laboratory, drafting room, library, class and lecture room, and locker and shower room, all relatively small but well equipped and quite adequate. In addition, conference rooms are provided at the Electro-Magnetic Separation Plant and at the Oak Ridge National Laboratory. Medical services are made available to members of the school on the same basis as to Carbide employees. The staff and students are subject to the same plant rules and regulations as are Carbide employees with respect to security, safety, and health.

There is no financial adjustment between the plant and the Practice School. The plant furnishes quarters, available services, supplies, utilities and furnishings and the opportunity for the Practice School to operate. This is done largely in

(Continued on Page 4)



PHOTOGRAPH SHOWS TRANSMISSION TYPE SPECTROGRAPH CONSTRUCTED BY L. G. Lankford and G. Carter, both of the Experimental Shops at Y-12. Also shown is the control panel of 140,000 volt power supply. In the picture are W. F. Reed, left, examining the X-ray tube, and E.J. Spitzer placing the cover on the spectrograph.

## Announce Aug. 12 Program Ridge Physics Seminar

Oak Ridge Physics Seminar at 4 p.m., Friday, August 12, in the East Lounge of the Ridge Recreation Hall. Magnetic Properties of Superconductors, Dr. Charles F. Squire, of Oak Ridge National Laboratory and Rice Institute. Dr. Squire has explained his subject as follows:

A group of pure metals known as superconductors are characterized not only by infinite electrical conductivity but by zero value of the magnetic induction vector within the metal. This large scale quantum effect occurs at temperatures of about 460° F below the temperature of melting ice, i.e. minus 260° C. The magnetic property of superconductors has been studied with the aid of war-developed instruments, capable of detecting fields as small as  $2 \times 10^{-9}$  Webers per square meter. Two types of superflow current are found to exist; one is the large current which is completely divorced from interaction with the crystal lattice, and the other is responsible for frozen magnetic flux and is locked to the lattice.

Experiments on rotating a superconducting body at 9,000 r.p.m. with the object of detecting a magnetic field are to be discussed.

The Detroit News quotes Dr. Norman Hillberry, deputy director of the Argonne National Laboratory of the Atomic Energy Commission, as saying that the first substantial production of atomic electricity may come within five years.

## 42 First Aid Teams To Compete In Carbide Contest Scheduled For Blankenship Field

Final approval for holding the second annual first aid meet in which teams from the three Carbide installations will compete, has been confirmed. According to the committees in charge of arrangements, the contest will be held at Blankenship Field, Saturday, September 17 at 7:30 p.m.

## Five Departments Set Perfect Work Records

Plant absenteeism for the week ending July 31 showed an increase of 1.2 per cent over the previous week when the plant average was reported to have been an even two per cent. Leading the Major League for the past week was the Building and Maintenance Department with an absenteeism mark of 0.7. This Department jumped from 11th position clear to the top. Five Departments in the Minor League posted perfect week; these five included the Maintenance Automotive Equipment, Uranium Control and Computing, Receiving and Shipping, the Cafeteria and Canteens, and general Maintenance Office, Planning, Estimating.

Second place in the Major League was secured last week by the Isotope Research and Production Department with an absenteeism mark of 1.3, and third place by

(Continued on Page 4)

The Boston Herald has reported the opening of Harvard University's new nuclear laboratory and cyclotron.

The 1949 exhibition will feature 42 teams competing for top honors including ten women's teams. Y-12 will be represented by 14 teams, K-25 by 18, and O.R.N.L. by ten teams. Ten women's teams and 32 men's teams will compete, six more than were represented in the 1948 contest.

Contrary to the 1948 rules, this year both men and women teams will compete on the same basis. The high scoring team on the field will receive \$105 in cash and a trophy. Top team from each installation will be awarded \$70 with the second place team receiving \$35 and third place team \$17.50.

Under the rules governing the meet which provide for two hours training per week prior to the meet, the Y-12 teams are training zealously with high hopes of bettering last year's performance. Realizing that judging is based on speed, accuracy and attention to detail, the Y-12 Training Staff is stressing these points in the regular team work-outs. With a years experience it is hoped that the representatives of Y-12 can improve on their scores of 1948.

At press time, two teams from Chemical Research Division plan to enter the event; four teams from the Industrial Relations Division and three from the Chemical Division are also training in preparation for the meet. Other teams entered include one each from the Manufacturing Office and Maintenance Divisions. In addition there is one plant-wide team entered in the competition.

## New Group M.I.T. Students

The third session of the M.I.T. Practice School was started recently when Dr. William J. Reed, Director, and William J. Larkin, Assistant Director, met five new students and started the program by familiarizing them with their responsibilities while at school.

The students enrolling for the third session are Frances J. Zimmerman, Benjamin J. Brettler, Louis Basel, Lee D. Carr and Charles M. Walker.



TWO OF THE FOUR Y-12 WOMEN'S TEAMS WHICH WILL compete in the Carbide First Aid Contest—The increase of teams which will represent Y-12 this time should enhance the chances of again capturing highest honors of the women's teams contesting. A plant-wide women's first aid team represented Y-12 last year as a single entry in the women's division and won first place. In the picture to the left are members of the Chemical Division's first



aid team. They are, left to right, Dora Bagwell, Lucille Townsend, Mildred Crass, Martha Ray, Mattye May, Corine Snyder. Team member not present when the picture was taken is Sue McKinnon. In the picture to the right are members of the Y-12 plant-wide team. They are, left to right, Desma Hutchison, Helen Brown, Mabel Tyer, Kay Orton, Maola Conner, Christine Sparkman, and Olyne Poindexter (the patient).

Y-12 Photos By Vince Moore



# Y-12 Bulletin

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## Mr. Consumer — You're Important; Business Beams Appeals At You



Feeling a little low? Is today one of those days when you figure that you're just one person in a tremendous mob, and that whatever you do won't mean two cents one way or the other? Well just take a look around you.

See that store window filled with products? Well, every one of those boxes or cans has a label on it that is aimed right at you. All those colors are screaming, "Take me home."

Flip on the radio tonight. Sit back and enjoy a good comedy, a thriller, or some music. After it's over take another minute to think about why that show was on the air. Somebody has spent thousands of dollars just to entertain you. Somebody wants you to have a good time just so they can take a minute to tell you about the product they want to sell.

Look at your mail. Take that one letter with the colored envelope and look at it first. The envelope is made of good paper, and the letter inside is nicely printed or typed. There won't be anything in it that will rub you the wrong way, because whoever wrote the copy and whoever paid the bill for the mailing and printing wants you to read it. They all have their fingers crossed, hoping you will buy what they have to sell.

A salesman rang your doorbell today. When you answered the bell you got a big smile and a carefully thought-out speech. The salesman doesn't want to offend you either. He wants to sell you something.

The answer is simple. You're not just one more point in the population statistics, you are much more. You are the American Consumer. What you think, say, and do is vitally interesting to hundreds of thousands of American businesses. They are interested in you because without you they cannot exist.

Every day in the week you put the stamp of approval on dozens of enterprises, and the manufacturers are grateful for it. You might buy a cake of soap. In buying the soap you have chosen one brand from a selection of many. Your money on the counter said the brand you purchased was better than the others.

During the day you buy other things, and over the course of the year you will buy many more. Business is watching these purchases. In an effort to please you some prices will go down, some products will be improved. Even the products you are buying will be changed so that you will continue to approve them by buying them.

**Business Knows You're Important**  
Maybe you don't consider yourself important, but businesses know you are. Daily they try to reach you by mail, magazines and newspapers, radio, telephone, and in person. To them you are the American Consumer, and you're important. Awfully important!

## Strictly Confidential!

Upon his return from a fishing trip to Elkmont, Tenn., Evan Means, Dept. 2077, reported a very nice string of rainbow trout which he caught in Little River . . . J. C. Ezell says his fishing luck has proven to be better when he goes alone. Recently he went on a fishing trip and caught his limit in rainbow trout and bass. When asked where this fisherman's heaven was Ezell said he would prefer keeping it a secret . . . Ed Kimbro traveled out Texas way to spend a vacation . . . K. A. Case is back on the job after recovering from a severe case of sunburn which he received while on a recent picnic . . . During his vacation J. H. Campbell visited with his mother in Elizabethton, Tenn.

Mary B. Fields, Dept. 2096, is back on the job after a restful vacation at her home in Oak Ridge.

H. J. Ratjen, Dept. 2200, vacationed in Oak Ridge last week spending a great deal of his time at the Oak Ridge Golf and Country Club . . . R. G. Orrison was on the sick list last week . . . E. C. Cain visited in Vermont while on vacation.

Jodie Brown spent last week with home folks in Viola, Tenn. Virginia Smith made a week-end trip to Dante, Va., to visit with relatives . . . Blanche Gibbs attended the Mountain Craft Fair held in Gatlinburg the week end of July 30.

Sympathy to Jackie Tankersley in the death of her mother, Mrs. R. F. Teague, in Chattanooga, August 2 . . . Emma Puckett is visiting with relatives in Shelbyville, Ky. . . We extend get well wishes to J. D. McGuffin's brother who is seriously ill in Harriman. It seems the fellows in Dept. 7142 are going out for new cars these days — M. C. Bays just purchased a new Chevrolet; E. H. Hudson, Pontiac; E. I. Griffin, Oldsmobile. We wish them happy motoring.

E. G. Struxness, Dept. 2144, returned recently from a vacation spent in Paynesville, Minn., and Springfield, Mo.

Shirley Brown, Dept. 2144, plans to visit points of interest in New Jersey while on vacation . . . J. R. Robinette is spending his vacation harvesting his farm near Lenoir City.

Dept. 2619 extends get well wishes to A. C. Lee who continues ill . . . We are happy to hear Hazel Lemon's sister, Mrs. Sue Lampley, has been discharged from the East Tennessee Baptist Hospital in Knoxville after undergoing an operation and is well on the road to recovery at her home in Sweetwater. Robert S. Toomey and his family is spending an intermission in Jacksonville, Fla.

Lovelle Thompson and Reatha tion at Myrtle Beach, S. C. last week.

Vacation time finds Ernest Zurcher, Dept. 2064, and his family taking life easy at Daytona Beach, Fla.

W. L. Morgan, Dept. 2002, and his family are visiting with relatives in Pennsylvania . . . Helen Baker is back on the job after vacationing in Alabama . . . H. D. Duncan and W. C. Moyers have returned from vacation . . . J. C. Bresnahan, Sr., and his family are visiting points of interest in Florida while on vacation . . . Helen Sisson had as recent house guests her sister and her family from Cincinnati, Ohio.

H. M. Montgomery, Dept. 2015, spent his vacation taking in the sights in the state of Virginia . . . E. F. Dykes continues on the sick list . . . H. J. Finger plans to spend his vacation calling on old friends at Newport, Tenn., with a side trip to Virginia Beach . . . S. J. Fouts is having a difficult time these days breaking in his store bought choppers, better known as false teeth . . . O. B. Wray is on the vacation list . . . E. L. Pichard is vacationing in Winston-Salem, N. C. . . C. L. Steppe is visiting with relatives in North Carolina . . . A. M. Schrader plans to visit with during his vacation.

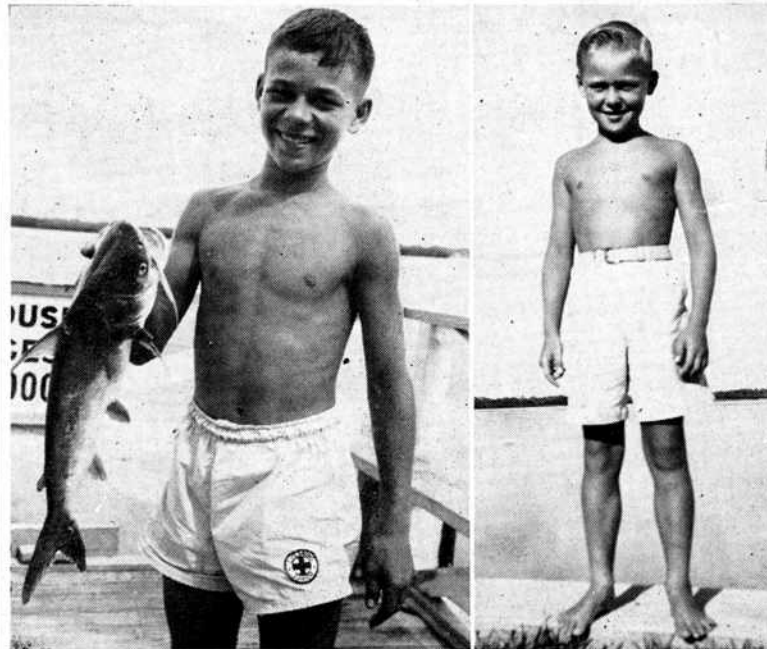
Evelyn Frazier, Dept. 2616, and her husband, Carl, Dept. 2360, left over the week end for Myrtle Beach, S. C. where they will spend their vacation . . . Pearl Black is in Fowler, Ind., visiting with her sister . . . Garnette Adams and her husband returned recently from a vacation spent in Union City, Tenn. . . We are happy Peggy Sigmon is well on the road to recovery after undergoing an operation at Bacon Hospital in Loudon, Tenn. . . Deep sympathy is extended to Garnette Arnold in the death of her father in Kingsport, Tenn. . . July 29 . . . Charles and Pauline Williams are back on the job after spending a vacation in Detroit, Mich. While there they ventured over into Canada.

R. E. Austin, Dept. 2142, is not worrying about baby sitting since his mother-in-law from Dallas, Texas, has arrived for a visit.

George H. Harvey, Dept. 2093, is visiting with his son in Washington, D. C. . . C. H. Sanders spent a quiet vacation at home in Knoxville . . . J. K. Overton was in Pensacola, Fla., while on vacation.

Opal Griffin, Dept. 2109, is driving a new Oldsmobile these days.

Virginia Hill, Dept. 2283, has returned from a vacation spent in



**PHIL RUEFF HAS A RIGHT TO BE PROUD OF THESE TWO boys**—To the left is Phillip, Jr., who posted highest score on the rifle range at Marymount, a boy's summer camp at Kingston Springs, Tenn. His score was the highest in the seven-year history of the camp. That is a nine-pound catfish Junior holds, a fish over three times as large as any his father ever caught in Tennessee waters. Junior, age 14, also registered the highest archery score of the senior campers. At the right is Phil's other son, David, age 10, also a summer camp champion. Besides being voted the best camper of boys, ages 8 to 14, David won the boxing championship for the second straight year. David has been awarded three weeks of free camping next year as the result of having been voted the best camper of junior boys.

## Hospital List

The following Y-12 employees were patients at the Oak Ridge Hospital recently: Annie Lucille Whitman, Dept. 2115; Betty Jane Sherman, Dept. 2282; Billy Joe McNeely, Dept. 2616; James C. Booher, Dept. 2091; Warren W. Beyer, Dept. 2283.

It was Sunday morning. The transport driver slipped on his wife's robe and went downstairs to answer the doorbell. As he opened the door, the iceman kissed him. After giving due thought to this strange occurrence, he decided that the iceman's wife must have a similar robe.

Gatlinburg, Tenn., and Fontana, N. C. . . . Mattie Anderson is vacationing at Daytona Beach, Fla. . . . N. L. Goodwin has returned from a vacation trip to Pensacola, Fla.

Dorothy Daugherty, Dept. 2270, returned recently after a vacation spent visiting with her aunt, Mrs. Edith Jones, of Baltimore, Md.

Nancy Doane, Dept. 2300, traveled to Cynthia, Ky., over the week end to visit with relatives.

Thomas and Frank Goss, Dept. 2107, are vacationing in Commerce, Ga.

## As Greeley Advised Y-12 Girls Go West

Y-12ers' have flooded The Bulletin office with reports of summertime vacations which have been faithfully chronicled in this publication. Most of these vacations have been of rather routine nature: Florida, Myrtle Beach, Gatlinburg, back home to visit the folks, etc. These reports have been replete with snapshots of borrowed fish, and fantastic tales of fabulous winnings on canine capers after "Lucky". For the record, we present the vacation log of three Y-12 girls who did a real piece of traveling through the highly colorful West.

Marie Greenway, Dept. 2200, Mary Margaret Norton, Dept. 2142, and Vera Rogers, Dept. 2617, recently returned from a West Coast bus tour which included seven miles of walking. No fault of the transportation, the seven miles was traversed on foot through the world-famous Carlsbad Caverns.

On the west-bound leg of the tour the girls traveled via Texas, Arizona, New Mexico and into Southern California, where they spent some time in Los Angeles. While there, they visited lovely Catalina Island, Ghost Town and Tia Juana, Old Mexico.

On the return trip they had stopovers at the Grand Canyon, Petrified Forest and Painted Desert. The girls also visited the Indian Reservations of New Mexico and the turbulent oil fields of Texas.

The trip not only ran the gamut of scenic wonders but also covered a wide range on the temperature scale. The girls reported temperatures varying from 40 at the Grand Canyon to 120 at Indio, Calif.

### BEET RELISH

One quart finely chopped cabbage.

One quart chopped boiled beets.

One cup chopped onion.

Two cups of sugar.

One cup grated horseradish.

One tablespoon black pepper.

One teaspoon of salt.

One-quarter teaspoon redpepper.

Vinegar.

Mix all the ingredients except the vinegar. Add enough cold vinegar to cover the mixture. Place in hot, sterilized jars, using the ball or zinc jars only as they seal without heat. This relish requires no cooking and its flavor increases on standing.

Makes six pint jars with 334 calories per jar. Source of Vitamins A, C and B Complex. Preparation time is 45 minutes.

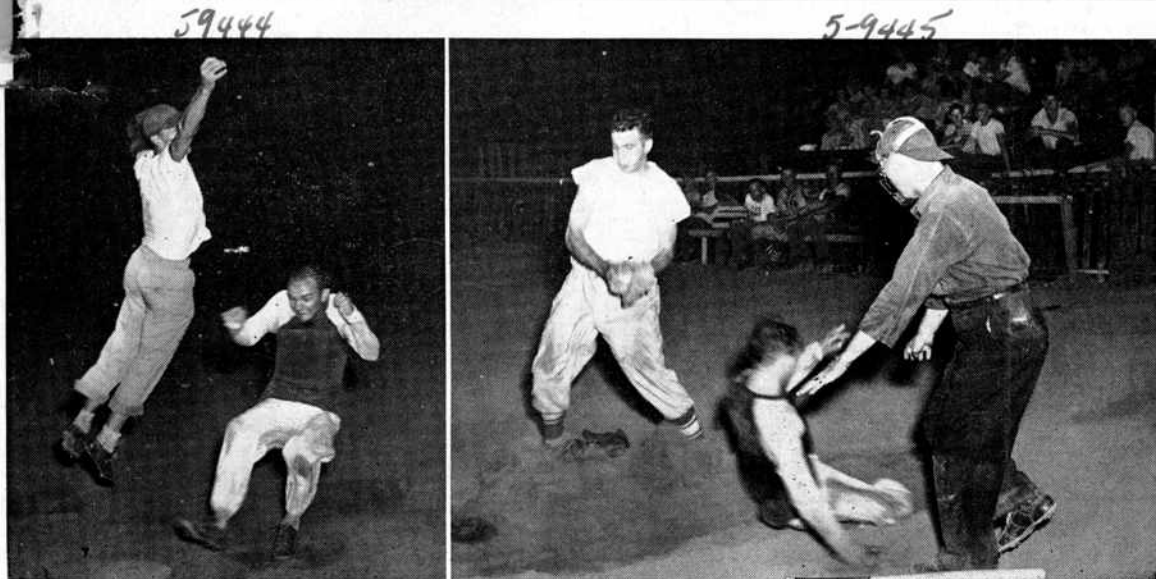


**ETHEL WHITE, DEPT. 2616, HONORED WITH STORK SHOWER, JULY 27, AT THE HOME of Dennie Williams, 149 Latimer Road. Hostesses were Dennie Williams, Rella Murr, Margaret Carter, Jeanette Arnold and Ethel Rose. In the picture sitting from left to right are Ruth Hounshell, Sylvia Hatmaker, Dennie Williams, Rella Murr, Margaret Carter, Jeanette Arnold, Ethel Rose, Lucy Townsend, Patsy and Sissy Mitchell. Standing are Margaret Hichman, Iva Mitchell, Ethel White, Corrine Hill, Lena Messamore, Mattie Maye, Iwada Boshears, Mary Anderson, Ione Clowers, Margie Giles and Myrtle Leach.**

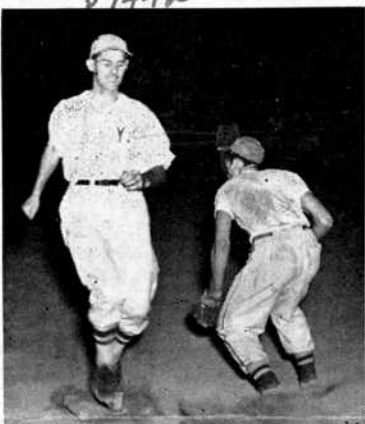
Y-12 Photos By Vince Moore



# SPORTS NEWS IN Y-12



Y-12 PHOTOGRAPHER VINCE MOORE CAPTURES SCENES OF THE MEMORIAL NO-HIT, no-run game—In this Recreation League softball game, Ed Size, Y-12 hurler, pitched the first perfect game in Oak Ridge history. Victim of his dazzling slants was the T&C team and the game was played at Pinewood, July 29. Picture to the left shows Roy Hale, Y-12 catcher, steaming into third in safely stretching a double into a triple. Picture at the right is a continuation of the other, for Roy paused momentarily at third and set sail for home when he saw the throw getting away from the third baseman. Hale scored three of Y-12's four runs.



Y-12 Photos By Vince Moore  
MANAGER BABB BEATS out third strike—the Y-12 shortstop demonstrates that hustle pays off in running out plays. He made it to first base safely when the catcher threw wild after missing the catch of a third strike in the Y-12-C&S game.

## Golf League Fades Golfers Seek Shade

All Y-12 golfers participating in the three links loops, Birdie, Par, and Bogey circuits, are advised to buy the wife flowers or a box of candy and play off those delayed matches. Play in all three loops lagged, possibly due to the recent hot weather, but the atmosphere has turned somewhat cooler and the course out at the OR Golf and Country Club has been given a recent grooming. Therefore, all golfers are urged to get caught up on matches so that play in all three leagues can get back on schedule. So far, Dunlap and Crews lead the Birdie League, with two wins, no losses; Wiest and Bowles head the Par loop, with a clean slate of 4 victories; and Cotton and Ludwig pace the Bogey procession, with two one and none lost.

## See Ball Games Here

The new Gamble Valley Stadium which will be the site for all future Oak Ridge Municipal Baseball League games, is located just west of the Drive-In-Theater, just off Baltimore Avenue. The No. 18 bus has been re-routed to pass within easy walking distance of the stadium. This bus leaves Jackson Square 13 minutes and 43 minutes after each hour.

Junior: "Daddy, what's a sweater girl?"

Daddy: "A girl who works in a factory making sweaters." (A slight pause.) "Say, where'd you get that question?"

Junior: "Never mind that, Daddy; where'd you get that answer?"

## Cardinals Drop Game To Community Stores

It was a wild night at the new Gamble Valley Stadium last Wednesday evening as the dew splattered the playing field so generously that errors just about equalled base hits in the 17-10 defeat of our Y-12 Cards by the Community Stores Colts. For most the early innings it was a close ball game as the Cardinals matched hit for hit, run for run, and error for error with the surging Colts. But youth will be served; the Colts were able to bounce back from the prone position with greater ease than the more brittle-boned Y-12ers. From the seventh on, it was in favor of the pony boys.

One bright star shone in the Card lineup against the Stores nine. That star was Fred "Hit Polka" Guttery, first half batting champion of the Muny League, who added immensely to his swatting laurels by getting four for four, three singles and a double. As the result of the Y-12 first baseman's perfect evening, he now leads the hitting parade in the second half.

Next Monday night, 8:15 p.m., the Cardinals will strive to take the AEC Patrolmen into camp at the Gamble Valley Stadium. The Y-12ers are determined to win this one and reward their faithful following.

Results of recent Y-12 games:

Team	(July 29)	R	H	E
Clinton	0 0 0 1 4 0 0 0	5	10	0
Y-12	1 0 0 0 0 1 0 0 0	2	8	3

Batteries: Clinton, Portwood and Turner; Cards, Johnson and Noe.

Team		R	H	E
K-25	0 0 0 6 0 0 0 1	7	10	3
Y-12	0 0 0 0 0 5 0 0 0	5	8	4

Batteries: K-25, Reeves and McCann; Y-12, Kappelmann and Noe.

LEAGUE STANDING

Team	W	L	Team	W	L
K-25	5	0	C. Stores	1	2
ORNL	3	1	Y-12	1	4
Clinton	2	2	AEC	1	4

## Medal Play Golf Tourney. Aug. 13-14

A 36-hole medal play tournament for Y-12 golfers has been arranged by the Recreation Department to start August 13 at the Oak Ridge Golf and Country Club. The first nine holes of the 18 which will be played on Saturday, August 13, will be division qualification, and the second nine will be for the purpose of determining flights. Rounds of 18 holes will be played again on Sunday, August 14.

All rounds played Saturday and Sunday will count as scoring in the medal play of 36 holes total. Prizes will be awarded for medal scores and flight winners. Y-12 golfers may enter by registering with the Pro at the clubhouse.

## Y-12 Gals Conditioned To Continue Winning

Y-12 racque-dears, first half titlists of the City Tennis League, stand right on the threshold of making it a clean sweep for the season as they prepare to take on their K-25 cousins from out West Turnpike way next Tuesday night in the last match of the season. Already having a decided advantage in the second half standing, 19 points won against but six losses, and leading the second place ORNLers by a nice margin, the Y-12 netfemmes can almost coast to a win in their next and final set.

Although rain interrupted last night's struggle with the Independents, Y-12 scored a few more points in their favor by winning a doubles match on default. Our girls were also leading in the other matches when the dew turned into rain.

One match was played in the Y-12 women's tennis ladder, with Mozelle Rankin taking the measure of Mary Freestone by scores of 6-4, 6-4. Ranking tops in the ladder play is Mozelle Rankin, followed by (in the order named), Freestone, Patrick, Burckhalter, Hart, Spivey and Thompson.

City League Tennis Standings (girls)

Team	W	L
Y-12	19	6
ORNL	14	9
Independents	13	11
K-25	2	22



A RAINBOW GLEAM IN HIS eyes—no wonder, for Evan Means displays a dandy string of beautiful rainbow trout he caught in Little River recently.

Son: What is the name of the man who brings you into contact with the spiritual world?  
Father: "A bartender."



Y-12 Photos By Vince Moore  
STONE, T&C PITCHER, CONGRATULATES SIZE ON THE latter's perfect pitched game—Ed Size (left, is shown at the score board with "Hard Rock" Stone after "Iron Man" Ed had pitched a no-hit, no-run, perfect game on August 19. Stone was stingy also, giving up but three hits to Y-12 batters. Stone points to the first and third innings where Y-12 made their three hits. Size's grand effort was the first perfect game ever hurled in Oak Ridge.

## Ed Size, No-Hit, No-Run Hurler, Earns Nickname Of 'Iron Man'

Up around Building 9212 you can hear the words, "Iron Man Ed." Of course the reference is to Y-12 softball flinger, Ed Size. Why "Iron Man?" Well, here is the record for the weekend of July 30.

It started at 9 p.m., Friday, July 29, at Pinewood Park when and where Y-12 and T & C, both undefeated in second half play, tangled in a Recreation League softie fracas. Opposing mound batteries were Size and Hale for Y-12, and Stone and Smith for T & C. Stone hurled a good game, allowing Y-12 only three hits which were used economically to score four runs. Now back to this guy, Size.

Having come close to the perfect game many times, but missing with one-hitter and two-hitters until last Friday night, Ed came through with that perfect game—13 strike outs, no walks, no runs, no hits, no errors. Nobody reached first and only one ball reached the outfield where it was captured. Well, that was the beginning. Saturday night comes; and again Size was the pitcher—this time against the strong Lonsdale team of Knoxville.

Size went all the way, allowing the Knoxville boys three hits and one run, while his teammates racked up six runs for another victory for Y-12. This same day, Saturday night, Y-12 took on the Beverly team, another Knox County softball aggregation. This time "Red" Darby and Size teamed up to win by allowing their third opponents in two days just two hits. The score tied 3-3 in the fourth, Size went in for Darby and hit for the circuit, breaking the tie and icing the old ball game. So its "Iron Man Ed" after a full weekend of softball.

Naturally Y-12 had eight other players on the field in these ball games and all the boys played perfect ball. Roy Hale was a headache for the opposition with his base running. In the T & C game the errorless ball players were Hall, catcher; McGill, second base; McPherson, centerfield; Gordon, first base; Shoemaker, third base; Frazier, leftfield; Webber, rightfield; Babb, shortstop; and Ed Size, pitcher.

## First Practice Set For Y-12 Bowlers

First call sounds for all Y-12 bowlers, men and women, in the announcement by the Y-12 Recreation Department that the first practice session (official) of the season has been set for 8 p.m., Thursday, August 11, at the Oak Terrace Alleys. This news concerns all Y-12 men and women who wish to tryout for the Y-12 sponsored men and women's teams. In order to start off on the right foot, it is urged that all interested bowlers show up for this first practice session.

## Bums Lead Plant League; Rippers In Second Spot

Bums are in the lead as Plant League turns into home stretch.

All Americans went slugging wild last Friday night as they knocked the Rippers off with 16 runs and 14 hits. This was the first defeat for the Rippers in the second half and their third for the season.

The All Stars in the second game kept their bats hot as they downed 9212 13-7. To prove they were not kidding they came back Monday night to beat the All Americans 4 to 2. The only other game last week saw the Rippers come back with a win over the Isotopes 7 to 3.

Team R H E

All Americans	2	0	5	7	2	0	0	16	14	2
Rippers	0	1	4	0	3	2	3	13	12	5

Batteries: All Americans, Ross, Boatman; Rippers, Gordon, Lowery.

Team	W	L
Bldg 9212	1	0
All Stars	3	5

Batteries: Bldg. 9212, Mustin, Moses; All Stars, Tilson, Morrow.

Team	W	L
All Stars	0	0
All Americans	2	0

Batteries: All Stars, Tilson, Morrow; All Americans, Ross, Boatman, Harding.

Team	W	L
Rippers	0	0
Isotopes	0	0

Batteries: Rippers, Gordon, Lowery; Isotopes, Killian, Griffin.

LEAGUE STANDING

Team	W	L
Bums	5	0
Rippers	4	1
All Stars	3	3
All Americans	3	3
9212	3	3
Isotopes	2	4

SCHEDULE  
Second Round — Last Half  
Monday, August 8  
5:45 p.m., Bums vs Isotopes.  
7:15 p.m., Rippers vs Bldg. 9212.  
8:45 p.m., All Stars vs All Americans.

Wednesday, August 10  
5:45 p.m., Bldg. 9212 vs All Stars.  
7:45 p.m., All Americans vs Isotopes.  
8:45 p.m., Rippers vs Bums.  
8:45 p.m., Bldg. 9212 vs All Americans.

## Ohio Seeks Bigger, Better, More Nuts

Bigger and better nuts are the objective of the Ohio Nut Growers' Association, according to a recent news dispatch from Canfield, Ohio. It reports the growers are looking for a new nut and prize money offered has nut-fanciers combing the countryside for a nut tree superior to those now in cultivation.

"We want to make a three-way cross and get one new variety that will not only bear the best nuts, but the biggest and most nuts, all from the same tree," according to Raymond E. Silvis, association secretary.



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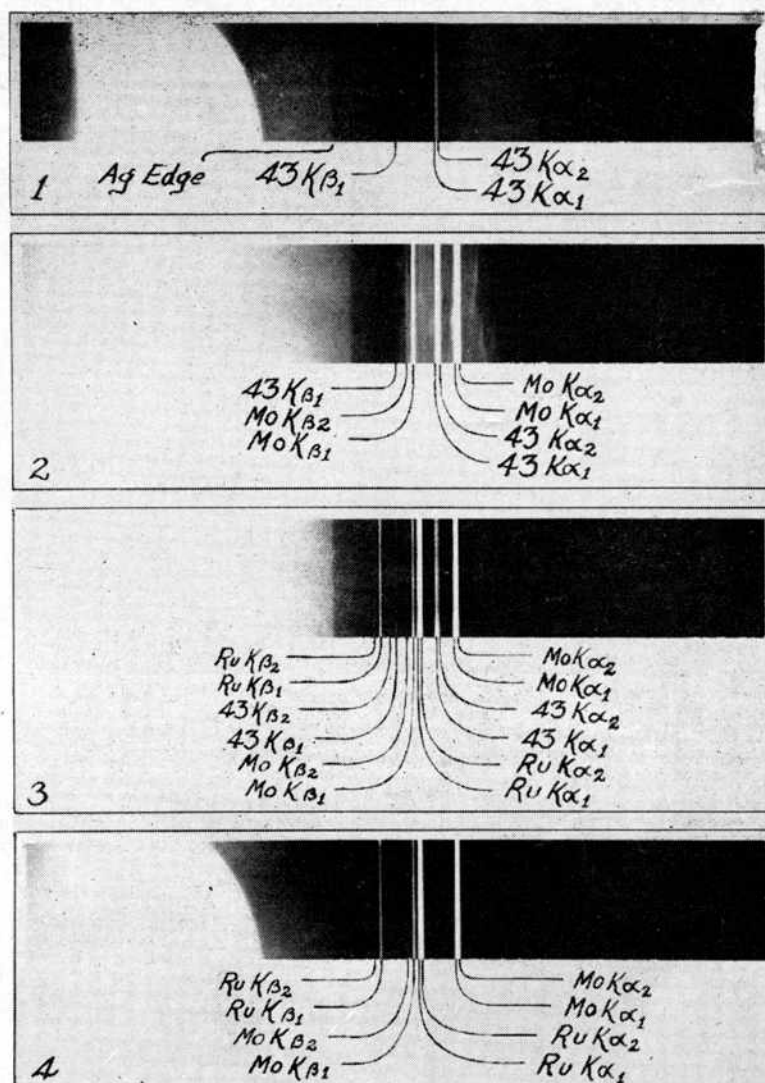
## (Continued From Page 1)

Research in the field of X-ray spectroscopy at Y-12 was initiated in 1944 under the direction of L. E. Burkhart. Two X-ray spectrographs are now in use. Compared to the usual visible spectrographic work the methods and equipment are very cumbersome, involving pressures lower than one millionth of an atmosphere and voltages sometimes higher than one hundred thousand volts. Due to these experimental difficulties and need for exposures of sometimes as long as several days these spectrographs are used only on very special problems such as identification of new elements.

Two interesting problems of this nature were identification of the elements Technecium and Promethium which were prepared in the atomic pile at ORNL. A picture showing the X-ray Spectrum of Technecium Atomic Number 43 is on page 4. The material used was isolated from fission Products by G. W. Parker, J. Ruch and J. Reed and supplied as a chemical salt of approximately 90% purity. The Isolation and purification of this material is a major chemical accomplishment which involved many months of painstaking work. Tentative identification had been made based on the observed chemical and radioactive properties, but until the X-ray spectrum was recorded and measured the identification was not indisputable. This work has been reported in Physical Review for 1948 in an article "X-Ray Spectrum of Element 43" by Burkhardt, Peed and Saunders.

An element of Atomic Number 61 has been a source of controversy among scientists for many years. This element is in the middle of a group of chemically similar elements known as rare earths and several workers have claimed that they isolated extremely small amounts of it and thereby claimed the right to name it. Among names that were proposed were Illinium and Florentinium. Other workers using the same methods were unable to confirm these results and many articles have appeared in scientific journals favoring one name or the other and, indeed, some claiming that this element does not exist in nature.

This element was first isolated in milligram quantities by G. W. Parker and P. M. Lantz of Oak Ridge National Laboratories. When the picture of the spectrum of this element was made, the entire world's supply of pure element 61 was in Y-12. As in the case of element 43, tentative identification has been made but for positive identification



ABOVE PHOTOGRAPH SHOWS CHARACTERISTIC X-RAY lines of the new element Technetium and their relative position when compared with lines of elements Molybdenum-42 and Ruthenium-44. This shows conclusively the position of this element in the periodic chart.

the X-ray spectra was needed and equipment and know how were available only in Y-12. The identification of Element 61 has been reported in two articles in Physical Review for 1949. "The K Spectrum of Element 61" by Burkhart, Peed and Spitzer and "The L Spectrum of Element 61" by Peed, Spitzer and Burkhart.

Many AEC installations have spectrographs and other equip-

ment similar to that in the Y-12 Spectroscopy Section, but as far as is known no other AEC Contractor is equipped to offer services of an X-Ray Spectrograph.

Future plans for this unique equipment include research on other new and rare elements made possible through the developments in recent years of research through the facilities of the Atomic Energy Commission.

Many Y-12 employees are air-minded and utilize that means of transportation for all of their journeys. When you step aboard one of the giants of the skyways now—how many of you folks realize just how much material and equipment made by Carbide and Carbon Chemicals Corporation and other units of Union Carbide and Carbon Corporation are incorporated into a Constellation or any of the other popular airliners of the times.

## Many Carbide Products Used

As the big airplane leaves the ground the propellers and the roaring engines pulling the craft forward are made up of many alloyed, mined, milled and processed by employees of United States Vanadium Corporation, Electro Metallurgical Co., Haynes Stellite Corporation and fashioned with Unionmelt welding, a process developed by the people of Linde Air Products Co. all Union Carbide units. Beneath the shining armor, Bakelite plastic control pulleys help adjust the position of your airplane in flight. Valves hard-faced with Haynes Stellite alloys maintain the engine efficiency. In the cockpit, hundreds of precision instruments running on Linde jewel bearings and incased in Bakelite phenolic plastics direct your flight.

As the airplane flies through the cold air of upper space, glycol, made by the people of Carbide and Carbon Chemicals Corporation, keep the water pipes of the galley from freezing, while activated carbon, made by National Carbon and marketed by Carbide and Carbon Chemicals Corporation, help keep the warmed air of the cabin pure.

### Carbon Brushes Are Used

The lights in the cabin come on and the wing tips flash their red and green lights. Carbon brushes made by the people of National Carbon are vital in the equipment generating the power for these as well as for the aircraft engines.

## (Continued from Page 1)

keeping with the educational policies of the Atomic Energy Commission by affording students practice and experience in the solution of engineering problems involved in the operation of atomic energy plants, and only in part because of the direct benefits from the student engineering work. The tuition for the Practice School course is the same as that for one term at the Institute, and the students do not receive financial compensation for their work.

Practice School Directed  
By Dr. W. A. Reed

Immediately in charge of the Practice School is the Director, Dr. W. A. Reed, aided by one or more Assistant Directors. The Directors are employed by the Massachusetts Institute of Technology and are responsible to the Head of the Engineering Practice School, Prof. J. E. Vivian, who for many years has been heading the School of Chemical Engineering Practice. The directors are resident at Oak Ridge and have charge of the students at the Practice School and in the plants. They schedule and supervise the work of the Practice School men, in so far as possible in conjunction with plant engineering personnel and plant and divisional superintendents, for maximum benefit in training for the students and in results for the plant.

## What The Practice School Means To AEC, Carbide, Students

The Practice School program means to the Atomic Energy Commission an activity in keeping with its expressed policy to (a) insure continued research and development by private institutions in the general field of atomic energy and its related activities, and (b) provide controlled dissemination of scientific and technical information "so as to provide that free interchange of ideas and criticisms which is essential to scientific progress."

To Carbide the Practice School program means a new group of engineering graduate students entering its plants every six months to

(Continued from Page 1)

the Essay Laboratory which had a mark of 1.4.

WEEK ENDING JULY 31, 1949

MAJOR LEAGUE			
More than 50 Employees Scheduled			
Dept.	Percentage Absent	7-31-49	Standing 7-24-49
2014	0.7	1	3
2360	1.3	2	4
2283	1.4	3	5
2320	1.9	4	1
2091	2.0	5	9
2616	2.1	6	11
2282	2.56	7	10
2003	2.63	8	8
2015	2.8	9	12
2677	3.0	10	2
2142	4.1	11	6
2300	4.8	12	7

Group absentee percentage was 2.3 per cent, .2 per cent lower than the preceding week.

MINOR LEAGUE			
15-49 Employees Scheduled			
Dept.	Percentage Absent	Standing	
		7-31-49	7-24-49
2009	0.0	1	1
2739	0.0	1	1
2143	0.0	1	1
2107	0.0	1	3
2002	0.0	1	4
2093	0.8	2	2
2133	1.0	3	1
2109	1.5	4	4
2090	2.4	5	6
2005	3.2	6	9
2619	3.3	7	7
2743	3.6	8	1
2200	4.2	9	8
2001	4.8	10	5
2060	5.0	11	4
2140	5.9	12	12
2008	6.9	13	10
2096	7.1	14	1
2270	7.5	15	11

Group absentee percentage was 3.1 per cent, 1.2 per cent higher than the preceding week.

The plant average for the week ending July 31, 1949 was 2.4 per cent, .2 per cent higher than the preceding week.

Doctor: "I'm sorry, but I can't cure your husband of talking in his sleep."

Wife: "Well, then could you make him talk louder—I'm hard of hearing."

study industrial methods by working on some of the problems encountered in its program of production, development, and research.

To the graduate engineering student of M.I.T. the Practice School means an exceptional opportunity to develop, amid pleasant and stimulating surroundings, the qualities of a competent engineer.



Y-12 Photos By Vince Moore

**SAILIN', SAILIN' OVER THE MILDLY BOUNDING WATERS OF FORT LOUDOUN LAKE—** The two pictures above lend verity to the fact that Y-12 folks engage in most diversified forms of recreation over the weekend; recreation that combines pleasant activity with relaxation. Nothing, perhaps, blends the two attributes of the combination so well as sailing which brings so complete a feeling of abandonment of cares as one drifts along with the lake breezes. Picture to this left gives this idea of serenity as Y-12 girl members of this boat crew smile their contentment. They are, left to right, "skipper" Audrey Braden, Nina Lowry, Chris Sparkman, Lucy Townsend and Rella Murr. In the picture to the right are, left to right, Rella Murr, Nina Lowry, Lucy Townsend and Audrey Braden. What these girls caught in their fishing attempts will be revealed next week. The boat belongs to Gus Angele.

## Insurance Firm Sees Longer Life In U. S.

Based on the wealth of statistics at hand, the Metropolitan Life Insurance Co., of New York, has predicted that the average length of life in the United States may be extended by almost five years during the coming decade.

The company believes that by 1960 the average length of life will be 68.4 years and by 1975 it will be increased to 71.4 years. The prediction is based on the "low" mortality forecast which, however, has been so conservative that in the past it has turned out to be higher than the actual mortality by 2.8 per cent.

For 20-year-olds in the present population, the company says the prospective gain in life expectation amounts to three and one-half years. At age 40 it is two and three-quarters per cent and at the age of 60 almost one year.

The company statisticians predict that by 1975 nine-tenths of the babies born that year will live about 50 years and again believe that the life table for that year may be too conservative.